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# CLAIMS

- [001] Process for the coextrusion of at least two polymer melt streams of different composition characterised by the process steps of
- a) melting of a polymer mass
  - b) separating the melt into at least two melt streams
  - c) mixing of additives into at least one melt stream and
  - d) combining the melt streams with coextrusion in one or several extrusion dies, the polymer mass being based on polyvinyl butyral and/or a terpolymer with ethylene units, vinyl acetate units and vinyl alcohol units.
- [002] Process according to claim 1 characterised in that at least one melt stream is passed in before and/or after process step c) being carried out by a dynamic or static mixing section.
- [003] Process according to one of claims 1 or 2 characterised in that process step c) of at least one melt stream takes place in a dynamic mixer.
- [004] Process according to one of claims 1 to 3 characterised in that the melt is passed through a melt filter between process step a) and b).
- [005] Process according to one of claims 1 to 4 characterised in that, after process step b), at least one melt stream is passed through a melt filter before and/or after the corresponding process step c).
- [006] Process according to one of claims 1 to 5 characterised in that at least one melt stream is extruded in process step d) through an

extrusion die with a wedge-shaped or torpedo-shaped partial area.

- [007] Process according to one of claims 1 to 6 characterised in that the additive in process step c) contains organic or inorganic pigments, carbon black, silicic acid, UV stabilisers and/or titanium dioxide.
- [008] Process according to one of claims 1 to 7 characterised in that the additive in process step c) contains PVB, EVA, PVC, PE, PP, PS, PC, PA and/or PMMA as such or as a blend and/or in mixture with plasticizers and/or fillers.
- [009] Process according to one of claims 1 to 8 characterised in that in process step d) at least two melt streams of a different colour are extruded to form a film or sheet with at least two areas of different colour intensity.
- [010] Process for the production of a film exhibiting a tinted strip and suitable for use as intermediate layer in laminated glazing characterised in that, in a process according to claims 1 to 9, a mass containing polyvinyl butyral is melted, divided into a main stream and a subsidiary stream, pigments are added to the subsidiary stream and the two streams are coextruded to form a film exhibiting a tinted strip.

[0008] From US 5332649 and US 5190706, the coextrusion of polyvinyl alcohols and ethylene vinyl acetates is known. The use of polyvinyl acetals is not disclosed therein. WO 96/28504 A1 describes a recycling process for PVB in the case of which a recycling stream is combined with fresh material, i.e. no separation of an initially uniform polymer melt into several partial streams with initially identical composition takes place, but the melt streams exhibit a different composition right from the beginning.

#### Technical Task

[0009] The task of the present invention consequently consisted of developing a process for the coextrusion of polymer melt streams of different composition which does not exhibit the disadvantages of the state of the art described above. In particular, the change-over periods for additives should be reduced and production failures more rapidly recognised and remedied on the basis of inhomogeneities of the coextrudate.

#### Disclosure of the invention

[0010] The subject matter of the present invention consequently consists of a process for the coextrusion of at least two polymer melt streams of different composition characterised by the process steps of

- a) melting of a polymer mass
- b) separating the melt into at least two melt streams
- c) metering of additives into at least one melt stream and
- d) combining the melt streams with coextrusion in one or several extrusion dies, the polymer mass being based on polyvinyl butyral and/or a terpolymer with ethylene units, vinyl acetate units and vinyl alcohol units.

[0011] By means of the process according to the invention, polymer melt streams containing preferably the same polymer and/or polymer mass but different additives can be coextruded in a manner flexible from the point of view of an industrial-scale production. The procedure according to the invention provides additionally the advantage of being able to do without a not inconsiderable part of the investments for the extrusion strand to which the additives are admixed.

[0012] The polymer mass used in the process according to the invention is based on polyvinyl butyral (PVB) and/or a terpolymer of ethylene units, vinyl acetate units and vinyl alcohol units, i.e. it contains these polymers in a quantity of at least 60, 70, 80, 90, 95 or 100% by weight, based on the polymer mass used in step a). These polymers can be used as such, as a blend and/or in mixture with plasticizers and/or fillers and/or other additives.

[0013] The polyvinyl butyrals used can have a degree of acetylation of 50 - 95%, preferably 65-85% and a residual PVOH content of 25 -5%. The polyvinyl alcohols have, in particular, a degree of hydrolysis of 75 - 100%, corresponding to an acetate content of approximately 25 - 0%.

[0014] The terpolymer with ethylene units, vinyl alcohol units and vinyl acetate units possesses these substructures preferably in the proportions of 0.5 - 20 mole %, 80-95.5 mole % and 10-0.5 mole % respectively.

[0015] Different polymer masses and/or melt streams according to the meaning of the present invention may contain e.g. the same polymers but different proportions of plasticizers, fillers or additives.

[0016] The above-mentioned polymers, blends, mixtures or organic or inorganic pigments, carbon black, silicic acid, UV stabilizers and/or titanium dioxide can be used as additives for process step c). For the production of PVB films for composite glazing, phthalocyanines or their metal complexes have proved suitable as dye.

[0017] The process according to the invention can be used in particular for the production of films or sheets exhibiting at least two areas of different colour intensity. In this case, at least two melt streams of different colour are extruded in process step d).